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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,463

09/19/2006

Pascal Daguiar

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02/05/2009

WENDEROTH, LIND & PONACK, L.L.P.

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SUITE 800

WASHINGTON, DC 20006-1021

EXAMINER

SHEVIN, MARK L

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

02/05/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,463	Applicant(s) DAGUIER ET AL.	
	Examiner Mark L. Shevin	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/19/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status

1. Claims 1-8, filed September 19th, 2006, are pending. Claims 5-8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 19th, 2008.

Priority

2. Applicants' claim to foreign priority of French patent application 0403038, filed March 24th, 2004 has been recorded.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted September 19th, 2006 in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner. Please refer to applicants' copy of the 1449 form submitted herewith.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Joint Inventors

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-4 rejected under 35 U.S.C. 103(a) as being unpatentable over **Badard** (WO 03/012156 A1 – English Machine Translation and PCT written opinion).

Badard:

Badard, drawn to a method for making a steel mechanical component a composition as shown in the table below to a low-pressure carburizing and low-pressure carbonitriding (Abstract and claims 1-5; p. 2, line 11 – p. 3, line 11).

Elements	Claim 1	Badard	Overlap
C	0.19 – 0.25	0.12 – 0.3	0.19 – 0.25
Mn	1.1 – 1.5	1 – 1.6	1.1 – 1.5
Si	0.8 – 1.2	0.8 – 1.5	0.8 – 1.2
S	0.01 – 0.09	0 – 0.1	0.01 - 0.09
P	trace – 0.025	0 – 0.03	trace – 0.025
Ni	trace – 0.25	0 – 0.6	trace – 0.25
Cr	1 – 1.4	0.4 – 1.6	1 - 1.4
Mo	0.10 – 0.25	0 – 0.3	0.10 – 0.25
Cu	trace – 0.3	0 – 0.3	trace – 0.3
Al	0.01 – 0.045	0 – 0.06 (0.008 – 0.05)	0.01 – 0.045
Nb	0.01 – 0.045	0 – 0.05	0.01 – 0.045

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		(0.02 – 0.05)	
N	0.013 – 0.03	0.007 – 0.025	0.013 – 0.025
Bi	opt trace – 0.1	0 – 0.08	trace – 0.08
Pb	opt trace – 0.12	0 – 0.07	trace – 0.07
Te	opt trace – 0.015	0 – 0.02	trace – 0.015
Se	opt trace – 0.03	0 – 0.04	trace – 0.03
Ca	opt trace - 0.0050	0 – 0.05	trace – 0.0050
Fe	Balance	Balance	Balance
Carburizing – Carbo-nitriding	950 – 1050 °C	950 – 1050 °C	950 – 1050 °C

Elements	Claim 3	Badard	Overlap
C	0.19 – 0.25	0.12 – 0.3	0.19 – 0.25
Mn	1.2 – 1.5	1 – 1.6	1.2 – 1.5
Si	0.85 – 1.2	0.8 – 1.5	0.85 – 1.2
S	0.01 – 0.09	0 – 0.1	0.01 - 0.09
P	trace – 0.025	0 – 0.03	trace – 0.025
Ni	0.08 – 0.25	0 – 0.6	0.08 – 0.25
Cr	1.1 – 1.4	0.4 – 1.6	1.1 - 1.4
Mo	0.10 – 0.25	0 – 0.3	0.10 – 0.25
Cu	0.06 – 0.3	0 – 0.3	0.06 – 0.3
Al	0.01 – 0.045	0 – 0.06 (0.008 – 0.05)	0.01 – 0.045
Nb	0.015 – 0.045	0 – 0.05 (0.02 – 0.05)	0.015 – 0.045
N	0.013 – 0.03	0.007 – 0.025	0.013 – 0.025
Bi	opt trace – 0.07	0 – 0.08	trace – 0.07
Pb	opt trace – 0.12	0 – 0.07	trace – 0.07
Te	opt trace – 0.010	0 – 0.02	trace – 0.010
Se	opt trace – 0.020	0 – 0.04	trace – 0.020
Ca	opt trace - 0.045	0 – 0.05	trace – 0.045
Fe	Balance	Balance	Balance
Carburizing – Carbo-nitriding	950 – 1050 °C	950 – 1050 °C	950 – 1050 °C

Elements	Claim 4	Badard	Overlap
C	0.20 – 0.25	0.12 – 0.3	0.20 – 0.25
Mn	1.21 – 1.46	1 – 1.6	1.21 – 1.45
Si	0.85 – 1.10	0.8 – 1.5	0.85 – 1.10
S	0.01 – 0.08	0 – 0.1	0.01 - 0.08
P	trace – 0.020	0 – 0.03	trace – 0.020
Ni	0.08 – 0.20	0 – 0.6	0.08 – 0.20

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Cr	1.10 – 1.40	0.4 – 1.6	1.10 - 1.40
Mo	0.11 – 0.25	0 – 0.3	0.11 – 0.25
Cu	0.08 – 0.3	0 – 0.3	0.08 – 0.3
Al	0.01 – 0.035	0 – 0.06 (0.008 – 0.05)	0.01 – 0.035
Nb	0.025 – 0.040	0 – 0.05 (0.02 – 0.05)	0.025 – 0.040
N	0.013 – 0.022	0.007 – 0.025	0.013 – 0.022
Bi	opt trace – 0.07	0 – 0.08	trace – 0.07
Pb	opt trace – 0.12	0 – 0.07	trace – 0.07
Te	opt trace – 0.010	0 – 0.02	trace – 0.010
Se	opt trace – 0.020	0 – 0.04	trace – 0.020
Ca	opt trace - 0.045	0 – 0.05	trace – 0.045
Fe	Balance	Balance	Balance
Carburizing – Carbo-nitriding	950 – 1050 °C	950 – 1050 °C	950 – 1050 °C

Advantageously, this carburizing or carbonitriding at low pressure is carried out at elevated temperature, namely between 950 and 1100 °C, which allows the processing time to be reduced by a factor of 2 to 3 in relation to an operation carried out at 820-930 °C. In these conditions, it is preferable to adjust the composition of the steel so that the grains do not grow too large (p. 4, lines 8-13).

Carburizing or carbonitriding at low pressure (to take a non-restrictive example, at 3 to 20 mbar, or 300 to 2000 Pa), is generally followed by gas quenching, which may also be followed by quenching with another fluid (oil, polymer) (p. 3, lines 31-35).

If the carburizing or carbonitriding is carried out at elevated temperature, the Al content is preferably from 0.008 – 0.05% so that the grains do not grow too large, in conjunction with preferred Nb and N contents (p. 6, para 3).

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Adding Nb allows a more homogenous grain size to be obtained, which promotes homogeneity of plastic deformation in use and further minimizes this deformation (p. 6, lines 24-31).

A relatively high nitrogen content, from 70-250 ppm is recommended if carburizing or carbonitriding is carried out at elevated temperature (p. 7, lines 15-22).

Badard also describes a mechanical part obtained using this method, which is a pinion component.

Regarding claims 1-4, it would have been obvious to one of ordinary skill in steel metallurgy, at the time of the invention, to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980). MPEP 2144.05, para I states: "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists." Badard discloses a steel with overlapping ranges of C, Mn, Si, S, P, Ni, Cr, Mo, Cu, Al, Nb, N, Bi, Pb, Te, Se, Ca, and Fe along with a substantially identical processing method as explained above.

With respect to the Jominy test criteria specified in the claims, if the starting point is substantially identical composition which is subjected to substantially identical heat and thermomechanical treatments, then one of ordinary skill would reasonably expect identical structures and properties to be

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obtained and thus the average values of the five Jominy tests will thus necessarily be at the intervals claimed in claims 1 and 2. From MPEP 2112, V: "[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on 'inherency' under 35 U.S.C. 102, on 'prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

Conclusion

-- Claims 1-4 (All elected) are rejected

-- No claims are allowed

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the metallurgical art would have reasonably understood or implied from the texts of the references. To emphasize certain aspects of the prior art, only specific portions of the texts have been pointed out. Each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

All recited limitations in the instant claims have been met by the rejections as set forth above. Applicant is reminded that when amendment and/or revision is required, applicant should therefore specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. § 1.121; 37 C.F.R. Part §41.37 (c)(1)(v); MPEP §714.02; and MPEP §2411.01(B).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark L. Shevin whose telephone number is (571) 270-3588 and fax number is (571) 270-4588. The examiner can normally be reached on Monday - Friday, 8:30 AM - 5:00 PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark L. Shevin/

/Roy King/

Supervisory Patent Examiner, Art Unit 1793

February 1st, 2009
10-593,463